


Annex to Solar Keymark Certificate					Licence Number		011-7S3079 F							
					Date issued		2021-12-01							
					Issued by		DIN CERTCO							
Licence holder			DIMAS SA		Country		Greece							
Brand (optional)					Web		https://dimas-solar.gr/							
Street, Number			2nd km Argos – Nafplio road		E-mail		info@dimas-solar.gr							
Postcode, City			212 00 Argos		Tel		+30 275 10209110							
Collector Type					Flat plate collector									
Collector name					Power output per collector									
					$G_b = 850 \text{ W/m}^2$, $G_d = 150 \text{ W/m}^2$ & $u = 1.3 \text{ m/s}$ $\vartheta_m - \vartheta_a$									
					0 K	10 K	30 K	50 K	70 K	112 K				
					m ²	mm	mm	mm	mm	mm	mm			
SUPREME ENERGY 25					2.52	2 006	1 257	85	1 915	1 823	1 627	1 413	1 181	634
Power output per m ² gross area					760	724	646	561	469	251				
Performance parameters test method					Quasi dynamic									
Performance parameters (related to A _G)					η_0, b	a1	a2	a3	a4	a5	a6	a7	a8	Kd
Units					-	W/(m ² K)	W/(m ² K ²)	J/(m ³ K)	-	J/(m ² K)	s/m	W/(m ² K ⁴)	W/(m ² K ⁴)	-
Test results					0.761	3.53	0.009	0.000	0.00	13 480	0.000	0.00	0.0	0.99
Incidence angle modifier test method					Quasi dynamic - outdoor									
Incidence angle modifier					Angle	10°	20°	30°	40°	50°	60°	70°	80°	90°
Transversal					K _{θT, coll}	1.00	1.00	1.00	0.99	0.96	0.89	0.68	0.34	0.00
Longitudinal					K _{θL, coll}	1.00	1.00	1.00	0.99	0.96	0.89	0.68	0.34	0.00
Heat transfer medium for testing					Water									
Flow rate for testing (per gross area, A _G)					dm/dt	0.020	kg/(sm ²)							
Maximum temperature difference during thermal performance test					($\vartheta_m - \vartheta_a$) _{max}	82	K							
Standard stagnation temperature (G = 1000 W/m ² ; $\vartheta_a = 30 \text{ °C}$)					ϑ_{stg}	230	°C							
Maximum operating temperature					$\vartheta_{max, op}$	-	°C							
Maximum operating pressure					p _{max, op}	1000	kPa							
Testing laboratory			Institut für Gebäudeenergetik, Thermotechnik und Energiespeicherung (IGTE)			http://www.igte.uni-stuttgart.de								
Test report(s)			21COL1630 21COL1630Q			Dated		24.11.2021 24.11.2021						
Comments of testing laboratory					Datasheet version: 6.1, 2019-09-26									
					 Forschungs- und Testzentrum für Solaranlagen Institut für Thermodynamik und Wärmetechnik Universität Stuttgart Pfaffenwaldring 6, 70550 Stuttgart (Vaihingen)									
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Annex to Solar Keymark Certificate Supplementary Information	Licence Number	011-7S3079 F
	Issued	2021-12-01

Annual collector output in kWh/collector at mean fluid temperature ϑ_m													
Collector name	Standard Locations ϑ_m	Athens			Davos			Stockholm			Würzburg		
		25°C	50°C	75°C	25°C	50°C	75°C	25°C	50°C	75°C	25°C	50°C	75°C
SUPREME ENERGY 25		3 151	2 300	1 568	2 419	1 721	1 141	1 771	1 191	756	1 935	1 296	812
Annual output per m ² gross area		1 250	913	622	960	683	453	703	473	300	768	514	322
Annual efficiency, η_a		71%	52%	35%	59%	42%	28%	60%	41%	26%	62%	41%	26%
Fixed or tracking collector		Fixed (slope = latitude - 15°; rounded to nearest 5°)											
Annual irradiation on collector plane		1765 kWh/m ²			1630 kWh/m ²			1166 kWh/m ²			1244 kWh/m ²		
Mean annual ambient air temperature		18.5°C			3.2°C			7.5°C			9.0°C		
Collector orientation or tracking mode		South, 25°			South, 30°			South, 45°			South, 35°		

The collector is operated at constant temperature ϑ_m (mean of in- and outlet temperatures). The calculation of the annual collector performance is performed with the official Solar Keymark spreadsheet tool Scenocalc Ver. 6.1 (September 2019). A detailed description of the calculations is available at <http://www.estif.org/solarkeymarknew/>

Additional Information	
Collector heat transfer medium	Water-Glycole
The collector is deemed to be suitable for roof integration	No
The collector was tested successfully under the following conditions:	
Climate class (A+, A, B or C)	A
G (W/m ²) >	1000
ϑ_a (°C) >	20
H_x (MJ/m ²) >	600
Maximum tested positive load	3000 Pa
Maximum tested negative load	2400 Pa
Hail resistance using steel ball (maximum drop height)	2 m

Additional collector attribute(s)	
<input type="checkbox"/> Using external power source(s) for normal operation	<input type="checkbox"/> Active or passive measure(s) for self-protection
<input type="checkbox"/> Co-generating thermal and electrical power	<input type="checkbox"/> Façade collector(s)

Energy Labelling Information		Additional Informative Technical Data	
	Reference Area, A_{sol} (m ²)	Hydraulic Designation Code	Aperture Area, A_a (m ²)
SUPREME ENERGY 25	2.52	12-V-1234S-7.2,1888-20.6,1310-D	2.32

Data required for CDR (EU) No 811/2013 - Reference Area A_{sol}		Data required for CDR (EU) No 812/2013 - Reference Area A_{sol}	
Collector efficiency (η_{col})	60%	Zero-loss efficiency (η_0)	0.76
Remark: Collector efficiency (η_{col}) is defined in CDR (EU) No 811/2013 as collector efficiency of the solar collector at a temperature difference between the solar collector and the surrounding air of 40 K and a global solar irradiance of 1000 W/m ² , expressed in % and rounded to the nearest integer. Deviating from the regulation η_{col} is based on reference area (A_{sol}) which is aperture area for values according to EN 12975-2 or gross area for ISO 9806:2017.		First-order coefficient (a_1)	3.53
		Second-order coefficient (a_2)	0.009
		Incidence angle modifier IAM (50°)	0.98
		Remark: The data given in this section are related to collector reference area (A_{sol}) which is aperture area for values according to EN 12975-2 or gross area for ISO 9806. Consistent data sets for either aperture or gross area can be used in calculations like in the regulation 811 and 812 and simulation programs.	